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The Reasons You Prune a Tree

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There are many reasons for pruning trees. Pruning will make trees more safe, increase vigor and health, and will make a tree more beautiful. Value-added benefits of pruning includes stimulating fruit production and increase the value of timber.

Pruning for safety - Remove branches that could fall and cause injury or property damage, trim branches that interfere with lines of sight on streets or driveways, and remove branches that grow into utility lines. Safety pruning can be largely avoided by carefully choosing species that will not grow beyond the space available to them, and have strength and form characteristics that are suited to the site.

Pruning for health - This involves removing diseased or insect-infested wood, thinning the crown to increase airflow which will reduce some pest problems, and removing crossing and rubbing branches.

Pruning can best be used to encourage trees to develop a strong structure and reduce the likelihood of damage during severe weather. Removing broken or damaged limbs encourage wound closure.

Pruning for aesthetics - Pruning can enhance the natural form and character of trees and stimulates flower production. Pruning for form can be especially important on open grown trees that do very little self-pruning.

Important Note: you are trying to improve a tree's structure, especially during the early years. As trees mature, pruning will shift to maintaining that tree's structure, form, health and appearance.

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Important Tree Pruning Method #1 - Crown Thinning

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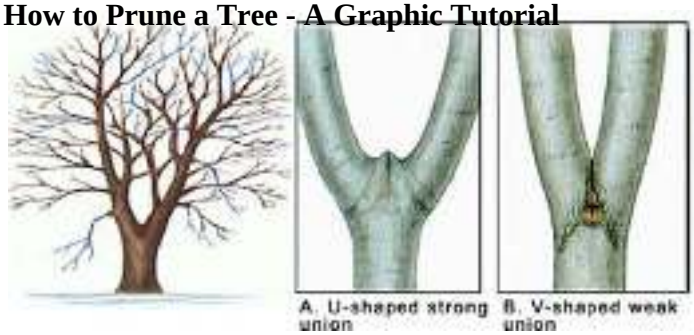

Tree Crown Thinning
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Crown thinning is a pruning technique primarily used on hardwood trees. Crown thinning is the selective removal of stems and branches to increase light penetration and air movement throughout the crown of a tree. The intent is to improve a tree's structure and form while making life uncomfortable for tree pests.

Stems with narrow, V-shaped angles of attachment (graphic b) often form included bark and should be selected for removal first. Leave branches with strong U-shaped angles of attachment (graphic a). The included bark forms a bark wedge when two stems grow at sharp angles to one another. These ingrown wedges prevent strong attachment of stems often causing a crack at the point below where the branches meet. Removing one or more of the stems will allow the other stem(s) to take over.

Branches growing off these stems should be no more than one half to three-quarters of the diameter of the stem at the point of attachment.

Avoid producing "lion's tails", tufts of branches and foliage at the ends of branches, caused by removing all inner lateral branches and foliage. Lion's tails can result in sunscalding, epicormic sprouting and weak branch structure and breakage. Branches that rub or cross another branch should be removed.

To avoid unnecessary stress and prevent excessive production of epicormic sprouts, no more than one-quarter of the living crown should be removed at a time. If it is necessary to remove more, it should be done over successive years.

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Important Tree Pruning Method #2 - Crown Raising

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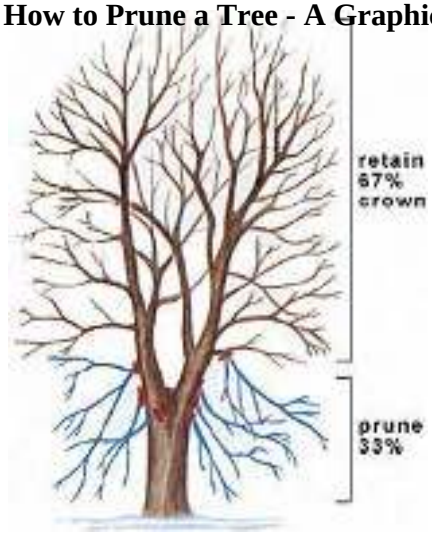

Tree Crown Raising
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Crown raising is simply removing branches from the bottom of the crown of a tree to provide clearance for pedestrians, vehicles, buildings or lines of site. For street trees the minimum clearance is often specified by municipal ordinance.

When pruning is complete, the existing living crown should be at least two-thirds of the total tree height. Example: a 36 foot tree should have living branches on at least the upper 24 feet.

On young trees, "temporary" branches may be retained along the stem to encourage trunk taper and to protect trees from vandalism and sun scald. Less vigorous shoots should be selected as temporary branches and should be about 4 to 6 inches apart along the stem. They should be pruned annually to slow their growth and should be removed eventually.

In forest timber management and to develop a higher value tree, you remove limbs from below for clear wood.

Removing limbs increases wood quality which increases timber production values. Removing lower limbs can also be of significant health value to certain tree species. Pruning lower branches on white pines can help prevent white pine blister rust.

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Important Tree Pruning Method #3 - Crown Reduction

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Crown reduction pruning is most often used when a tree has grown too large for its permitted space. This method, sometimes called drop crotch pruning, is preferred to topping because it results in a more natural appearance, increases the time before pruning is needed again and minimizes stress.

Crown reduction pruning should only be used as a *method of last resort*. This pruning technique often results in large pruning wounds to stems that may lead to decay. This method should never be used on a tree with a pyramidal growth form. A better long term solution is to remove the tree and replace it with a tree that will not grow beyond the available space.

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How to Make a Pruning Cut - Part I

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The Pruning Cut
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Pruning cuts should be made so that only branch tissue is removed and stem tissue is not damaged. At the point where the branch attaches to the stem, branch and stem tissues remain separate. If only branch tissues are cut when pruning, the stem tissues of the tree will probably not become decayed and the wound will seal more effectively.

To find the proper place to cut a branch, look for the branch collar that grows from the stem tissue at the underside of the base of the branch. On the upper surface, there is usually a branch bark ridge that runs (more or less) parallel to the branch angle, along the stem of the tree. A proper pruning cut does not damage either the branch bark ridge or the branch collar.

A proper cut begins just outside the branch bark ridge and angles down away from the stem of the tree, avoiding injury to the branch collar.

Make the cut as close as possible to the stem in the branch joint, but outside the branch bark ridge, so that stem tissue is not injured and the wound can seal in the shortest time possible. If the cut is too far from the stem, leaving a branch stub, the branch tissue usually dies and woundwood forms from the stem tissue. Wound closure is delayed because the woundwood must seal over the stub that was left.

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How to Make a Pruning Cut - Part II

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A complete ring of callus or woundwood will form from a proper pruning cut. Flush cuts made inside the branch bark ridge or branch collar, result in pronounced development of woundwood on the sides of the pruning wounds with very little woundwood forming on the top or bottom.

Avoid cuts that leave a partial branch called a stub. Stub cuts result in the death of the remaining branch and woundwood forms around the base from stem tissues. When pruning small branches with hand pruners, make sure the tools are sharp enough to cut the branches cleanly without tearing. Branches large enough to require saws should be supported with one hand while the cuts are made. If the branch is too large to support, make this three-step pruning cut to prevent the bark ripping or peeling down into good bark.

1.

The first cut is a shallow notch made on the underside of the branch, outside the branch collar. This cut will prevent a falling branch from tearing the stem tissue as it pulls away from the tree.
2. The second cut should be outside the first cut, all the way through the branch, leaving a short stub.
3. The stub is then cut just outside the branch bark ridge/branch collar, completing the operation.

The quality of pruning cuts can be evaluated by examining pruning wounds after one growing season.

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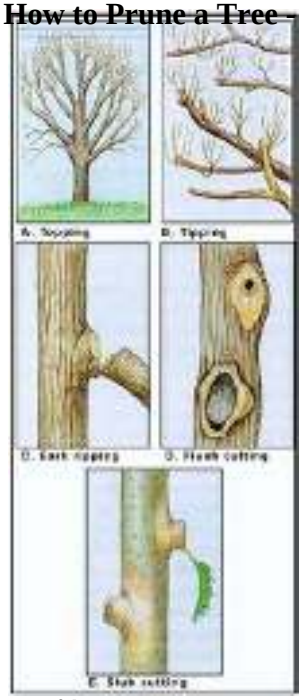

Harmful Pruning Cuts
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Topping and tipping are common pruning practices that harm trees and should not be used. Crown reduction pruning is the preferred method to reduce the size or height of the crown of a tree, but is rarely needed and should be used infrequently.

Topping, the pruning of large upright branches between twig nodes, is sometimes done to reduce the height of a tree. Tipping is a practice of cutting lateral branches between nodes to reduce crown width. These practices invariably result in the development of epicormic sprouts or in the death of the cut branch back to the next lateral branch below. These epicormic sprouts are weakly attached to the stem and eventually will be supported by a decaying branch.

Improper pruning cuts cause unnecessary injury and bark ripping. Flush cuts injure stem tissues and can result in decay. Stub cuts delay wound closure and can provide entry to canker fungi that kill the cambium, delaying or preventing woundwood formation.

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When to Prune Trees Without Showy Flowers

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Conifers may be pruned any time of year but pruning during the dormant season may minimize sap and resin flow from cut branches.

Hardwood trees and shrubs without showy flowers need to be pruned in the dormant season to more easily see the structure of the tree, to maximize wound closure in the growing season after pruning, to reduce the chance of transmitting disease and to discourage excessive sap flow from wounds. Recent wounds and the chemical scents they emit can actually attract insects that spread tree disease.

In particular, wounded elm wood is known to attract bark beetles that harbor spores of the Dutch elm disease fungus and open wounds on oaks are known to attract beetles that spread the oak wilt fungus. Take care to prune these trees during the correct time of year to prevent spread of these fatal diseases.

Contact your local tree disease specialist to find out when to prune these tree species in your area. Usually, the best time is during the late fall and winter.

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When to Prune Trees With Showy Flowers

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Flowering trees and shrubs should also be pruned during the dormant season for many of the same reasons you prune less showy trees. Still, to preserve the current year's flower crop, prune according to the following schedule:

* Trees and shrubs that flower in the early spring (redbud, dogwood, etc.) should be pruned immediately after flowering. Early tree bloomer's flower buds appear on new growth the following year.
* Many flowering trees are susceptible to fireblight, a bacterial disease that can be spread by pruning. These trees, including many varieties of crabapple, hawthorn, pear, mountain ash, flowering quince and pyracantha, should be pruned during the dormant season. Check with your county extension agent or urban forester for additional information.
* Trees and shrubs that flower in the summer or fall should always be pruned during the dormant season.

Flower buds will form on new twigs during the next growing season and the flowers will bloom normally.

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Pruning is essential in developing a tree with a strong structure and desirable form. Here are several methods on how to prune trees.

Difficulty: Average

Time Required: 5 minutes - depending on age

How To How to Prune a Young Tree

Here's How:

1. Start with procuring pruning shears or a pruning saw for larger limbs. These tools are necessary to do the job correctly and with the most ease.
2. Remove structurally weak and dead limbs first. Cut off limbs that appear dead or limbs with leaves that look distressed.
3. Make pruning cuts just outside the branch collar and nearly, but not completely, flush to the trunk. This provides viable growing branch bark that will improve wound closure.
4. Leave most functional limbs on newly planted trees and prune for form the second year or third year.
5. Prune forked codominate trunks to one dominate trunk. Forked trunks lead to multiple problems including poor form, excessive pruning and health problems.
6. Prune all permanent branches up to a desirable first branch height (generally 8 feet at maturity). Remember that urban and yard trees need to have a raised base for access and yard work.
7. After several years of a maturing tree, remove branches trying to space 12 to 18 inches apart. Do not do this the first few years but wait for a period of time where the tree is growing rapidly.
8. Always think of the biology of a growing tree. If a permanent branch is to be shortened, cut it back to a lateral branch or bud where an immediate growth response will be initiated and that limits dead wood that increases the possibility of disease.
9. It has been found that sealing a wound with a dressing does not help in the healing process. Do not seal cuts with wound dressing unless for cosmetic purposes.

Tips:

1. A rule-of-thumb for the vertical spacing of permanent branches is to maintain a distance equal to 3% of the tree's eventual height.
2. Trees that are used to screen an unsightly view or provide a wind break may be allowed to branch low to the ground. Most large growing trees in the landscape must eventually be pruned to allow head clearance.
3. The goal in training young trees is to establish a strong trunk with sturdy, well-spaced branches.

What You Need:

- pruning shears
- pruning saw

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